Horse Creek Watershed Improvement Project

Environmental Assessment

Shoshone National Forest

Wind River Ranger District

Fremont County, Wyoming

April 2004

Final Document

In order to make changes and additions from the Predecisional EA easier for the reader to find, they are highlighted within this final document.

Minor edits in grammar and spelling are not highlighted.

Revisions and changed text will be highlighted with shading and italics like this.

Sections of text that have been added are contained in a shaded text box like this.

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This document is available on the internet: http://www.fs.fed.us/r2/shoshone/projects/planning/nepa/projectinfo.htm

Abstract. This Environmental Assessment (EA) is a public document that will provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact. The proposed action is to decommission 12.6 miles of primitive routes, 11.1 miles of closed roads, and 2.4 miles of currently open road, to convert 2.2 miles of open road to a motorized trail, to convert 2.1 miles of open road to a non-motorized trail, and to relocate two trailheads. There are two additional alternatives: a no action alternative and an action alternative. The proposed activities would occur in the Horse Creek drainage, approximately 15 miles North of Dubois in Fremont County, Wyoming.

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Chapter 1 Purpose and Need

This chapter provides background information on the project, a presentation of the purpose and need for the actions, and a summary of the public issues and concerns with the proposed action.

1.1 Background

This environmental assessment (EA) discloses the environmental effects of decommissioning roads and primitive routes, converting portions of open roads to trails, enforcing a seasonal closure with a gate, and addressing trailhead access in the Horse Creek watershed. These activities are proposed to meet the desired condition of providing a transportation system that is safe, cost-efficient, and responsive to public and management needs with minimal negative ecological effects on the land. Specifically, the proposed action is to:

- Decommission/obliterate 12.6 miles of primitive routes, 11.1 miles of closed roads, and 2.4 miles of open roads
- Convert 2.2 miles of open road to motorized trail and 2.1 miles of open road to non-motorized trail
- Relocate the 810 trailhead and enlarge the existing 811 trailhead
- Gate FSR 506 at its junction with FSR 506.1A and at its junction with FSR 505 in order to better enforce the existing winter range closure.

Geographical Information Systems (GIS) and other data and product accuracy vary. Therefore, the mileages used in this document may vary by +/- 5%, which was considered in the effects analysis.

Seventy-five percent of the road mileage affected by the proposed action involves already closed roads. It is important to define the road terminology used in this document:

- Closure – Storage of a road for future use, with treatments to the road corridor and surroundings based on site conditions and closure duration (USDA FS 1996).
- Decommission – Treatment of a road to reduce environmental impacts (e.g., removal of stream crossings and installation of waterbars). Decommissioning can vary in degree and may involve conversion to trail or complete recontouring.
- Obliteration – To dismantle or deactivate a road; elimination of the travelway functionality; return of the road corridor to resource production by natural or designed means (USDA FS 1996).
- Primitive route – A route that was not designed, has no designed drainage, and is not maintained or part of the official road system (unclassified road). Typically these roads are two-track routes and/or user created.

The Forest is initiating this proposal as part of implementing the Shoshone Land and Resource Management Plan (Forest Plan). This is not a decision document. The responsible official will document the decision in a Decision Notice after a 30-day public review of the EA.

Additional information that supports the analysis presented in this document is contained in the project file located at the Supervisor's Office, 808 Meadow Lane, Cody, Wyoming 82414.

This EA is tiered to the Forest Plan (as amended) and the associated environmental analysis and decision documents. Tiering is in accordance with CEQ regulations (40 CFR 1502.20 and 1508.28), which allow the responsible official to focus on site-specific issues that are within the scope of a broader plan, program, or analysis that is already approved. All documents are incorporated by reference in this document, and can be reviewed upon request at the Wind River Ranger District, 1403 West Ramshorn, Dubois, Wyoming 82520 or the Supervisor's Office, 808 Meadow Lane, Cody, Wyoming.

The Forest is implementing the Forest Plan as required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA, P.L. 93-378) and the National Forest Management Act of 1976 (NFMA, P.L. 94-588). The Forest Plan establishes management direction for the Forest. This direction is described forest-wide and by management area. Designing and implementation of projects consistent with this direction is the means to move the forest toward the desired future conditions as described in the Forest Plan. Forest Plan direction

established sideboards for the development of alternatives to the proposed action. Within these sideboards, an interdisciplinary (ID) team developed alternatives and mitigation that responded to the issues and concerns. All alternatives and associated mitigation are designed to be consistent with Forest Plan direction unless specifically noted.

1.1.1 Horse Creek Watershed Assessment and Roads Analysis

In 2000, the Forest completed a watershed assessment and a roads analysis for the Horse Creek watershed (Shoshone NF 2000a and 2000b). The watershed assessment provides a summary characterization of the human, terrestrial, and aquatic features, conditions, processes, and interactions within the national forest portion of the watershed. The roads analysis resulted in an integrated ecological, social, and economic examination of the transportation system. These documents are incorporated into this EA by reference and are available at the Wind River District Office in Dubois or the Supervisor's Office in Cody.

The team identified which roads are essential for resource management and which roads are unnecessary. The proposed action is based upon the roads analysis recommendation to decommission unnecessary roads. There are currently 83.3 miles of roads within the project area. The miles are broken out as such: 51.8 miles of currently open roads, 18.9 miles of closed roads, and 12.6 miles of primitive routes.

1.2 Location

The proposed activities are located approximately 15 miles north of Dubois, Wyoming in Fremont County. The project analysis area includes the non-wilderness Forest lands within the Horse Creek watershed (see Figure 1). The project is located on the Wind River Ranger District of the Shoshone National Forest and is accessed by county road and Forest Service Road (FSR) 285. The proposed activities would occur in portions of T43N, R107W; T43N, R106W; and T44N R107W.

1.3 Management Areas

The Forest Plan assigns a management emphasis to each portion of the Forest to meet multiple-use objectives. For each designated management area, Chapter III of the Plan includes a description of desired future conditions, goals, objectives, and standards and guidelines. The Forest Plan management area designations for the project analysis area are shown on Figure 2 and summarized in Figure 3.

1.4 Purpose and Need

The roads analysis team identified risks and opportunities for the existing conditions. The analysis discusses several opportunities that promote a road system that is safe and responsive to management needs, has reduced ecological effects on the land, and is in balance with available funding (Shoshone NF 2000b).

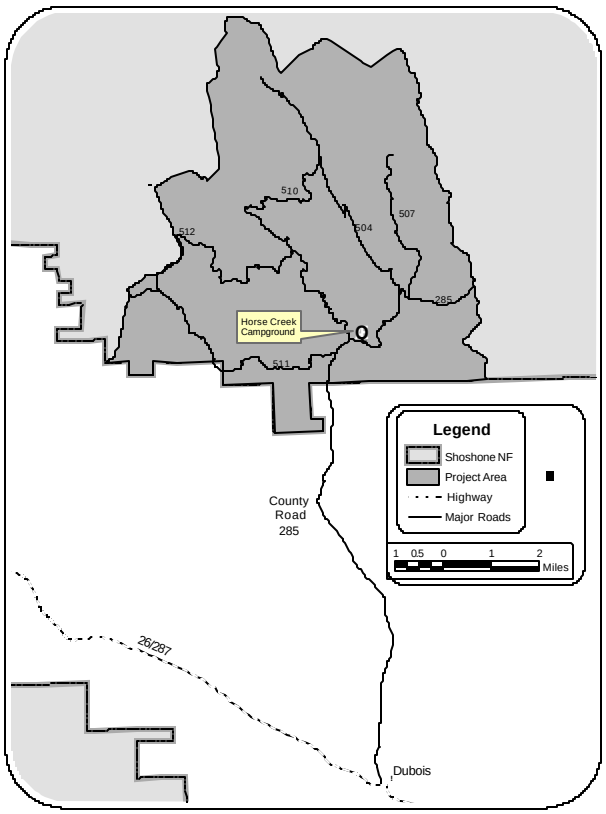

Figure 1. Horse Creek Watershed Improvement Project map.

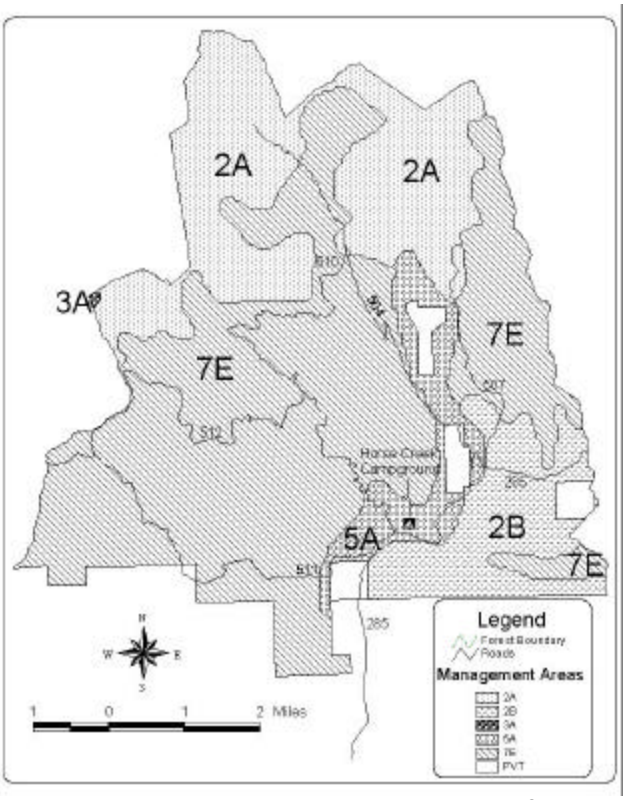

Figure 2. Horse Creek Management Area designations for the analysis area.

Figure 3. Applicable Forest Plan Management Areas and Direction Summaries

Management Area	Direction Summaries
2A	Provide for semi-primitive motorized recreation opportunities such as snowmobiling, four-wheel driving, and motorcycling on roads and trails. Motorized travel may be seasonally prohibited or restricted to designated routes.
2B	Provide for rural and roaded natural recreation opportunities. Motorized and non-motorized recreation activities such as driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing are possible. Conventional use of highway-type vehicles is provided for in design and construction of roads. Motorized travel may be prohibited or restricted to designated routes to protect physical and biological resources.
3A	Provides for semi-primitive non-motorized recreation in both roaded and unroaded areas. Recreation opportunities such as hiking, horseback riding, hunting, and cross-country skiing are available. Seasonal or permanent restrictions on human use may be applied.
5A	Provide for winter range in non-forested winter ranges for deer, elk, bighorn sheep, and mountain goats. Treatments are applied to increase forage production of existing grass, forb and browse species or to alter plant species composition. Prescribed burning, seeding, spraying, planting, and mechanical treatments may occur. Browse stands are regenerated to maintain a variety of age classes and species.
7E	Provide for wood-fiber production and utilization of large roundwood of a size and quality suitable for sawtimber.
9A (Unmapped)	Riparian area management. Resource use will be managed to protect and maintain the riparian area. Vegetation treatment will enhance plant and animal diversity. Primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided. This prescription applies to all riparian areas located anywhere on the Forest, except those in wilderness, research natural areas, and special interest areas.

1.4.1 Need for Action

The current situation does not meet the desired condition for the area. Figure 4 shows where the desired condition is not being met and where there is a need for action to begin bringing the area up to the desired condition. Concerns about the existing road system include watershed and soils issues such as erosion and sedimentation, fisheries, channel problems, unstable soils, slides, slumps, noxious weeds, and poor roadway conditions. In addition, current maintenance funding levels are inadequate to fully maintain the existing road system. Unplanned roads have developed due to use, ease of terrain, and lack of enforcement. Many closed roads receive motorized use. Action is necessary in order to provide a sustainable, usable system for access while protecting and improving the health of the ecosystem.

Figure 5 shows the existing road network. Only twelve percent (3.8 miles) of the closed roads and primitive routes are not receiving motorized use and are considered effectively closed. In contrast, eighty-eight percent (27.7 miles) of closed roads and primitive routes continue to receive motorized use and are shown in Figure 5 as having an attempted closure. Attempted closures consist of physical barriers (berms, large waterbars, logs, etc.) or administrative features (road closed signs or the lack of a white arrow sign).

Chapter III of the Forest Plan includes direction for management of the Forest. ***Figure 4*** compares the relevant direction to the conditions that currently exist. The comparisons show where a need or opportunity for action exists.

Figure 4. Forest Plan direction, existing conditions, and opportunities for the analysis area.

Forest Plan Direction	Existing Conditions[1]	Opportunities
Soil and Watershed Resources		
Maintain or improve soil productivity and water quality (III-8). Rehabilitate lands in declining and unsatisfactory watershed condition (III-9). Maintain soil productivity, minimize man-caused soil erosion, and maintain the integrity of associated ecosystems (III-86). Provide permanent drainage and establish protective vegetative cover on all existing roads that are being removed from the transportation system (III-86).	A comprehensive road inventory conducted in the mid-1990s identified unacceptable effects on long-term soil productivity and stream health from erosion and sedimentation due to lack of road maintenance, use during wet periods, inadequate or lack of road design, and road length extension by forest users. Stream health inventories conducted during the same period validated the soil and water concerns related to roads. The road system has deteriorated due to lack of maintenance and increased use. Necessary maintenance has not occurred primarily due to funding. Soil erosion, sediment delivery, and soil productivity concerns exist. The road system modifies the surface hydrology of the area due to its connectivity to the stream network and its general lack of cross drains with buffer strips between the road and the stream or wetland. Wind-drifted snow tends to collect in the roadbed and with snow melt and runoff will tend to concentrate to rills and gullies within the roadbed. Some roads have light to heavy use by motorized vehicles, which cause erosion due to runoff concentration in wheel ruts and sedimentation, which fills waterbars so that they are no longer effective. Sediment delivery to streams occurs due to connected disturbed areas throughout the Horse Creek watershed.	Repair or rehabilitate roads that are negatively affecting the watershed. Maintain Forest Service system roads to be consistent with the documented and approved maintenance level for each road. Decommission unnecessary roads using methods that prohibit motorized use, restore natural drainage patterns, remove fills, and revegetate the prism. Implement measures that prohibit motorized use on existing closed roads.

[1] The "Existing Conditions" column is based on the Watershed Assessment and Roads Analysis (Shoshone NF 2000a and 2000b).

Forest Plan Direction	Existing Conditions[1]	Opportunities
Transportation System		
Develop a transportation system that meets land and resource management needs at lowest cost and least disturbance to the environment (III-10). Implement travel management practices, including both seasonal and permanent closures, to protect road and trail investment (III-10). Manage motorized travel on roads, trails, and snow to protect land and resource values at lowest cost and with a minimum of regulations (III-10).	Deferred maintenance surveys reveal critical health and safety maintenance work items for Roads 285 and 511. Additionally, Roads 504 and 510 have safety sight distance and surface maintenance concerns. The fine native materials are slippery when wet and provide less than adequate traction and load support for the expected traffic, creating large mudholes, ruts and opportunities to slide off the road and/or get stuck. Many local side roads are unsurfaced, thereby creating similar conditions as previously mentioned. Risks are vehicle damage and threats to personal safety. Roads in the watershed include both Forest Service system roads and unclassified roads. There is a fairly adequate road system in place to meet Forest Plan objectives for resource management activities, although there are too many roads in the watershed for wildlife seclusion objectives. A number of roads in the watershed are in poor condition and need reconstruction (generally, drainage, clearing, and surface work) to improve their condition if they were to remain on the Forest Service system. Current maintenance funding levels are inadequate to fully maintain the existing road system.	Improve ecosystem health by repairing roads that are negatively affecting the watershed. Decommission roads that are unnecessary for resource management. Adjust road maintenance levels, including closing and decommissioning roads. Maintain Forest Service system roads to be consistent with the documented and approved maintenance level for each road. Improve closures on roads designated as closed. Closures could be any physical barrier that best fits the location and the reason for closure. Enforce closures. Maintain and improve existing seasonal and permanent closures to prohibit use by high-clearance vehicles.

Forest Plan Direction	Existing Conditions[1]	Opportunities
Transportation System (continued)		
No net increase in roads Close all newly constructed roads to public motorized use unless documented analysis shows (III-88): a) Use does not adversely impact other resources, b) use is compatible with the ROS class established for the area, c) they are located in areas open to motorized use, d) they provide user safety, e) they serve an identified public need, f) the area accessed can be adequately managed, or g) financing is available for maintenance or coop-maintenance can be arranged. Keep existing roads open to public motorized use unless (III-89): a. a) Financing is not available to maintain the facility or manage the associated use of adjacent lands, b) use causes unacceptable damage to soil and water resources, c) use conflicts with the ROS (Recreation Opportunity Spectrum) class established for the area, d) they are located in areas closed to motorized use and are not "designated routes" in the Forest travel management direction, e) use results in unsafe conditions unrelated to weather conditions, f) there is little or no public need for them; or g) use conflicts with wildlife management objectives.	A road inventory conducted in the mid-1990s identified that many closed roads continue to receive motorized use. A number of roads in the watershed are in poor condition and would reconstruction to remain on the Forest Service system. Current maintenance funding levels are inadequate to fully maintain the existing road system. The transportation system seems to expand due to unplanned roads that develop by use, ease of terrain, and lack of enforcement.	Decommission unnecessary roads using methods that prohibit motorized use, restore natural drainage patterns, remove fills, and revegetate the prism.

Forest Plan Direction	Existing Conditions[1]	Opportunities
Recreational Resources		
Provide increased public access to National Forest System lands, appropriate to the management objective of the areas served (III-7). Manage activities along travel routes to maintain and enhance recreation and scenic values (III-7) Provide adequate trails and trailheads for both motorized and non-motorized use in both winter and summer seasons (III-7).	Recreation use monitoring indicates increased use of motorized forms of recreation, particularly all terrain vehicles. Monitoring also indicates the two existing trailheads could be relocated in order to improve user access, provide acceptable parking, and reduce impacts to access roads. ATV use is increasing and there is a need to provide quality off-road recreation experiences for this user group.	Establish designated motorized trails. Improve and/or relocate trailheads to accommodate easier use.

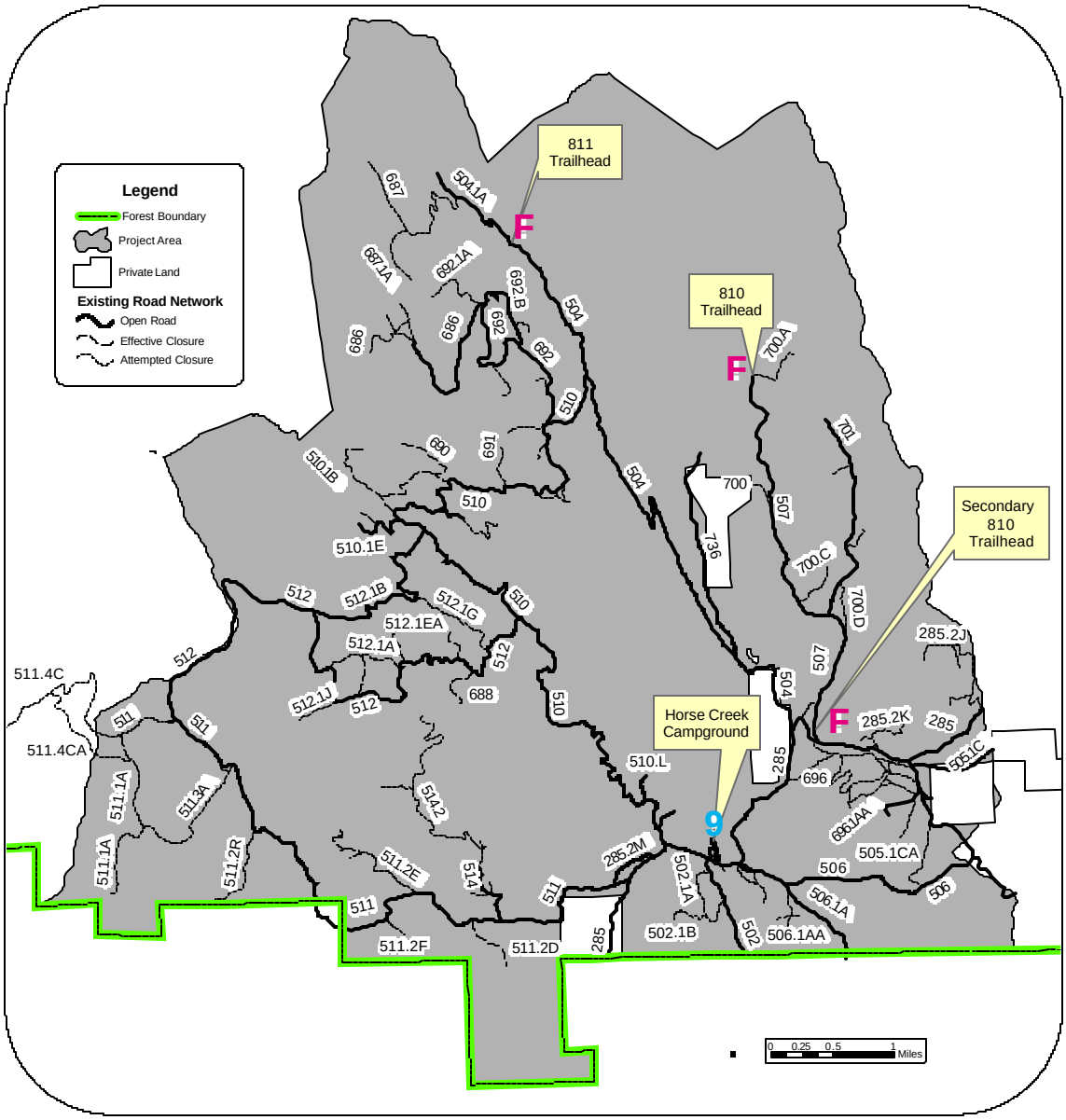

Figure 5. The existing road network in the Horse Creek watershed.

1.4.2 Purpose for Action

Based on review of the site-specific conditions and opportunities described above, the decision maker has chosen to focus on the following Forest Plan direction:

- Maintain or improve soil productivity and water quality.
- Rehabilitate lands in declining and unsatisfactory watershed condition
- Maintain soil productivity, minimize human-caused soil erosion, and maintain the integrity of associated ecosystems.
- Develop a transportation system that meets land and resource management needs at the lowest cost and least disturbance to the environment.
- Provide permanent drainage and establish protective vegetative cover on all existing roads that are being removed from the transportation system.
- Close all newly constructed roads to public motorized use unless documented analysis shows: a) use does not adversely impact other resources, b) use is compatible with the Recreation Opportunity Spectrum (ROS) class

established, c) they are located in areas open to motorized use, d) they provide user safety, e) they serve an identified public need, f) the area accessed can be adequately managed, or g) financing is available for maintenance or coop-maintenance can be arranged.
- Keep existing roads open to public motorized use unless: a) Financing is not available to maintain the facility or manage the associated use of adjacent lands, b) use causes unacceptable damage to soil and water resources, c) use conflicts with the ROS class established for the area, d) they are located in areas closed to motorized use and are not "designated routes" in the Forest travel management direction, e) use results in unsafe conditions unrelated to weather conditions, f) there is little or no public need for them; or *g*) use conflicts with wildlife management objectives.
- Provide adequate trails and trailheads for both motorized and non-motorized use in both winter and summer seasons.

In summary, the purpose and need for action is to enhance watershed and soil resources by decommissioning unnecessary roads. *Adherence of* other Forest Plan direction, such as cultural resource management, would be met through the implementation of standards and guidelines.

1.5 Proposed Action

A proposed action, based on recommendations of the watershed assessment and roads analysis, was defined early in the project-level planning process. The proposal served as a starting point for the ID team, and gave the public and other agencies specific information on which to focus comments. The proposed activities tied to the purpose and need are summarized below (section 2.2.2 describes the proposed action). Of the 83.3 miles of road, the Forest would:

- Define the designated road system to include 45.1 miles of open road and 7.8 miles of closed road.
- Decommission/obliterate 12.6 miles of primitive routes, 11.1 miles of currently closed road, and 2.4 miles of currently open road.
- Convert 2.2 miles of FSR 512 into a motorized trail.
- Convert the northern 2.1 miles of FSR 507 into a non-motorized trail (to become part of Trail 810). The northern trailhead for Trail 810 would be moved south 2.1 miles along FSR 507.
- Resurface FSR 507 with gravel from its intersection with FSR 285 to the new trailhead in order to provide better access during wet periods.
- Enlarge the 811-trailhead to better accommodate vehicles with horse trailers. Resurface the northern portion FSR 504 with gravel in order to provide for better access during wet periods.
- Gate FSR 506 at its junction with FSR 506.1A and at its junction with FSR 505 in order to better enforce the existing winter range closure.

Additional details and other connected activities of the proposed action are discussed in Chapter 2. A no action alternative and an action alternative are also discussed in Chapter 2.

1.6 Public Involvement

1.6.1 Scoping Statement

On December 21, 2001, a scoping letter describing the project proposal was sent to 61 individuals, media, groups, private land owners, organizations, Native American Tribes, and agencies to notify them of the proposal and to request their comments and concerns. The Forest also issued a news release on December 21, 2001 to newspapers in Dubois, Lander, Riverton, and Cody, Wyoming. The Forest sent the scoping statement to 15 additional parties on March 21, 2002. Appendix A documents the parties that were mailed a copy of the scoping statement.

1.6.2 County Commissioners Public Meeting

At the request of the Fremont County Commissioners, Forest Service representatives attended a county commissioners public meeting on January 15, 2002 to discuss the proposal. The commissioners provided an

opportunity for the public to ask questions regarding the proposal. Reporters from the *Casper Star-Tribune* and *Billings Gazette* covered the meeting.

1.6.3 Project Update Statements

The Forest issued a news release on April 1, 2002 to the local papers in Dubois, Lander, Riverton, and Cody, Wyoming in order to provide an update on the project status. The Forest also sent a project update statement to 67 interested parties to update them of the project's status on June 7, 2002.

1.6.4 Public Field Trip

On August 30, 2002, the Forest issued a public field trip notice to 40 interested parties to inform them that we would conduct a public field trip on September 14, 2002 to discuss the project. The Forest also announced the field trip in a news release on August 30, 2002. The sign-in sheet indicates that at least 33 people attended the field trip. Also, the *Dubois Frontier* ran an article discussing the field trip.

1.6.5 Comments

All comments received since the scoping was initiated in December 2001 have been documented and considered. All parties contacted by the Forest and all parties who have contacted the Forest regarding this project are documented in Appendix A. The results of the public involvement process are documented in Appendix B. Responses included letters, inquiries, phone calls, and e-mails. The correspondence is retained in the official project file. All comments received through the public involvement processes were considered in developing the issues and alternatives, which directed the analysis process.

1.7 Issues

1.7.1 Key Issues

The key issues represent those issues that the decision maker needs to consider in selecting an alternative. The key issues include significant issues as defined in NEPA regulations (40 CFR 1500.4[1]) that are used in the development of alternatives to the proposed action. The key issues received the most public and internal specialist concern. Guided by the Forest Plan, the ID team developed mitigation measures and alternatives to the proposed action to address the key issues, comments, and concerns identified during scoping. A brief description of the key issues identified for this project follows.

Soil and Watershed Resources

The watershed assessment and roads analysis identified watershed health as a concern. Specific findings of the assessment include unacceptable effects on long-term soil productivity and steam health from erosion and sedimentation due to lack of road maintenance, use during wet periods, inadequate or lack of road design, and road length extension by forest users (Shoshone NF 2000a).

Many public comments suggest that watershed conditions could be improved through other means such as constructing drainage structures, improving road maintenance, and closures during wet periods.

Transportation System/Economics

The roads analysis identified issues with the transportation system. The road system consists of a mixture of FSRs and unclassified roads. A number of roads are in poor condition and would need reconstruction (e.g., drainage, clearing, and surface work) to improve their condition in order to remain on, or to be placed on, the system. Many roads are of inadequate design and maintenance, which produce environmental and public safety issues (Shoshone NF 2000b). Road maintenance funding levels are inadequate to maintain or reconstruct many roads to standard.

Many of the comments received during scoping also addressed road system management issues.

Recreation and Human Uses

Accessibility was one of the more frequently mentioned concerns voiced by the public. Many are concerned with public access for motorized recreation, hunting, camping, fuelwood gathering, and other multi-use recreation by all segments of the population. Some comments noted that the roads allow for the rapid removal of harvested big game, which reduces the chances for human/predator interactions.

There is a desire to establish designated motorized trails. The roads analysis noted increases in motorized vehicle use, particularly all-terrain vehicles (ATVs). Concerns of whether the existing system is adequate to meet anticipated recreation uses and levels were also identified (Shoshone NF 2000b).

The watershed assessment and roads analysis identified that two existing trailheads are inaccessible during wet periods. Public comments discussed the need to maintain trail access. However, many expressed interest in minimizing the facilities available at the trailheads (e.g. adequate parking, turn around space, and hitching rails for livestock) and asked the Forest not to construct restrooms and corrals. Several comments were also received regarding the location of the trailhead.

Public comments were received regarding the economic impacts the project would have on local communities. Several comments identified that the recreational opportunities provided in the area are economically important to the local community.

1.7.2 Other Issues and Concerns

The ID team considered other issues and concerns raised by the public. These issues and concerns are summarized and responded to in Appendix B. Many of these were addressed in the EA through changes or additions to the proposal, mitigation measures, or the display of additional information in the analysis.

1.8 Decision To Be Made

An EA is not a decision document. The purpose of this document is to disclose the effects and consequences of the proposed action and alternatives and to solicit public input. The responsible line officer will make a decision based on consideration of the purpose and need for the project, the effects of the alternatives, and public involvement.

For this project the responsible official, District Ranger Rick Metzger, must decide:

- Whether to implement the proposed action, the alternative to the proposed action, or the no action alternative. The decision will be documented in a Decision Notice that will be issued no sooner than 30 days after this EA is distributed for public review and comment.
- Whether to prepare an environmental impact statement. If the environmental analysis indicates to the decision maker that impacts associated with the alternatives are not significant, then he will make a finding of no significant impact (FONSI, 40 CFR 1508.13) that allows the action to proceed without performing an environmental impact statement.

Chapter 2 Alternatives

This chapter describes the proposed action, an alternative action, and the no action alternative. This chapter also includes a comparative summary of the environmental effects of the alternatives.

2.1 Alternatives Considered But Eliminated from Detailed Study

Combining and relocating the 810 and 811 trailheads at the end of road 736 near the T-Cross Ranch. This location was originally part of the proposed action. However, it is not feasible at this time. FSR 736 is a one-lane road and is not wide enough to accommodate two vehicles with horse trailers to pass one another. The present condition of FSR 736 does not meet the project objective to provide accessible trailheads. The amount of work required to widen FSR 736 is not cost effective.

Increasing road maintenance, improving existing roads, and opening currently closed roads to motorized use. Several roads are in poor condition and would need reconstruction to remain on, or to be placed on the Forest road system. Maintenance funding levels are inadequate to fully maintain many of the existing roads. Road maintenance shall continue as allowed by appropriated funds.

Closing FSR 512 rather than converting it to a motorized trail. FSR 512 provides an opportunity to deliver a motorized trail in order to meet a demonstrated desire for such use.

2.2 Alternatives Considered and Analyzed in Detail

The ID team formulated the action alternative (Alternative 3) to be responsive to issues identified during scoping and to address the purpose and need identified in Section 1.4.2. The alternative is designed to be consistent with the Forest Plan and Forest Service law, regulation, and policy.

2.2.1 Alternative 1 – No Action

Alternative 1 is the no action alternative. NEPA regulations require the Forest Service to identify the no action alternative and use it as a baseline for comparing the environmental consequences of the other alternatives (40 CFR 1502.14(d), and Forest Service Handbook 1909.15, 14.1). Under the No Action Alternative, current management and regulations related to the transportation system would continue. Specifically, the no action alternative would involve the following:

- Of the existing 83.3 miles of road:
  - The 51.8 miles of currently open road would remain open.
  - The 18.9 miles of closed road would remain closed to motorized use.
  - The 12.6 miles of primitive routes would remain closed to motorized use.
- Ineffective closures could be improved as needed through regular road management procedures. Site treatments could include installing adequate drainage and other measures to prohibit motorized use.
- The 810 and 811 trailheads would not relocated or improved.
- Enforcement of travel restrictions (seasonal and permanent closures) would continue.

Figure 6 illustrates the road management that would occur under the no action alternative.

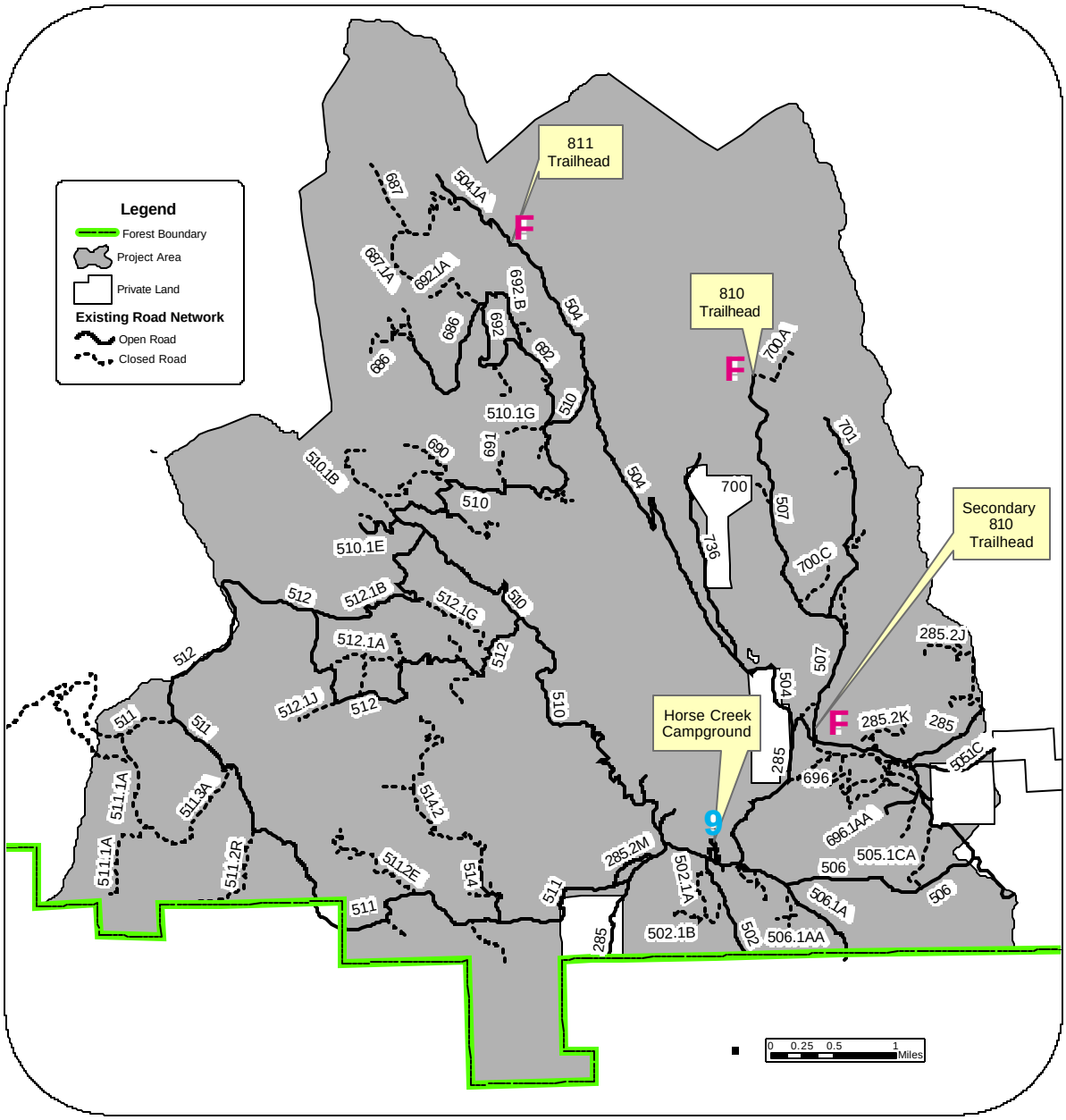

Figure 6. Road management under the no action alternative.

2.2.2 Alternative 2 – Proposed Action

Alternative 2 is the proposed action. The focus is on enhancing watershed and soil resources by decommissioning unnecessary roads, as determined through the roads analysis process. Project activities associated with the proposed action would include the following:

- The designated road system would consist of 45.1 miles of open road and 7.8 miles of closed system.
- Open roads would remain subject to seasonal closures. The closed roads would remain on the system for future resource management and access needs.
- Decommission/obliterate 12.6 miles of primitive routes, 11.1 miles of closed road, and 2.4 miles of currently open road (FSRs 504.1A, and 692). Techniques would include a combination of methods to

prohibit motorized use, restore natural drainage patterns, remove fills, and revegetate the roadbed. Specific techniques would include waterbarring, recontouring, soil ripping, and placing woody debris on the roadbed.

- Convert 2.2 miles of FSR 512 (currently open road) into a motorized trail.
- Convert 2.1 miles of FSR 507 (currently open road) into a non-motorized trail.
- Gate FSR 506 at its junction with FSR 506.1A and at its junction with FSR 505 in order to better enforce the existing winter range closure.
- Relocate the northern trailhead for Trail 810. The trail would be moved south 2.1 miles along FSR 507. The northern 2.1 miles of FSR 507 would become part of Trail 810. The remaining portion of FSR 507 would be resurfaced with gravel from its intersection with FSR 285 northward to the new trailhead in order to provide better access during wet periods.
- The 811trailhead would remain near its present location and would be enlarged to accommodate parking and turn around for vehicles with horse trailers. FSR 504 would be resurfaced with gravel from the 504/510- intersection northward to the 811trailhead in order to provide increased accessibility during wet periods.
- The trailhead facilities would include parking areas, turnaround areas, and livestock hitching rails.
- Effectiveness monitoring of the decommissioning work would be conducted after implementation.
- Road closures would be signed and enforced as needed.

Figure 7 provides a map of the activities that would occur under Alternative 2.

In response to comments received during public scoping, the proposed action was modified from how it was originally defined in the scoping statement. The modifications include the following:

- The proposal to combine and relocate the 810 and 811 trailheads at the end of FSR 736 was eliminated (see section 2.1 for explanation).
- The northern portion of FSR 504 (0.7 miles) is no longer proposed for closure. Due to the modification in the trailhead proposal, this road would remain open to access the 811trailhead.
- Addition of a gate on FSR 506 to enforce the seasonal closure.

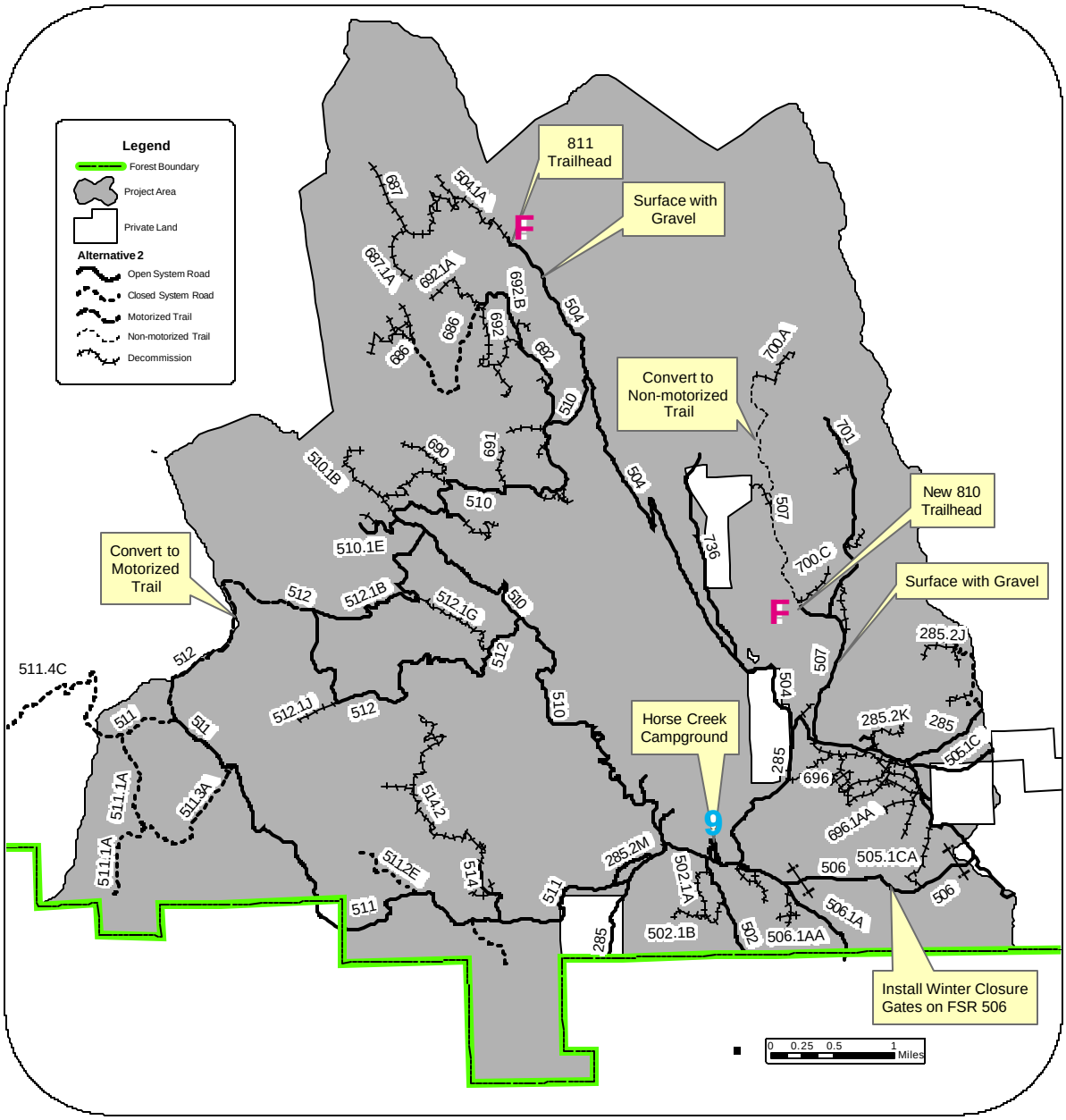

Figure 7. This map shows the actions proposed under alternative 2.

2.2.3 Alternative 3

Under alternative 3, no currently open roads would be decommissioned and primitive route 506.1AA would be designated as an open road (0.3 miles). This alternative preserves the current legal public access level by maintaining currently open roads on the transportation system. Only closed roads and primitive routes (except 506.1AA) would be decommissioned. This alternative removes the 810-trailhead and trail from the trail system.

Project activities associated with this alternative are the same as Alternative 2 except for the following:

- The Forest road system would consist of 52.1 miles of open road and 7.8 miles of closed road.
- Primitive route 506.1AA would be added to the road system as an open road.

- Currently open roads (FSRs 504.1A, 507, 512, 692, and 696.1AA) would not be decommissioned or converted to trails; these roads would remain as open system roads.
- Decommission/obliterate 12.3 miles of primitive routes and 11.1 miles of closed roads.
- Backcountry access would be provided by the 811-trailhead. The trailhead would be enlarged and improved. FSR 504 would be resurfaced with gravel as described in Alternative 2.
- Trailhead and trail 810 would be removed from the trail system.

Figure 8 illustrates the activities that would occur if Alternative 3 were implemented.

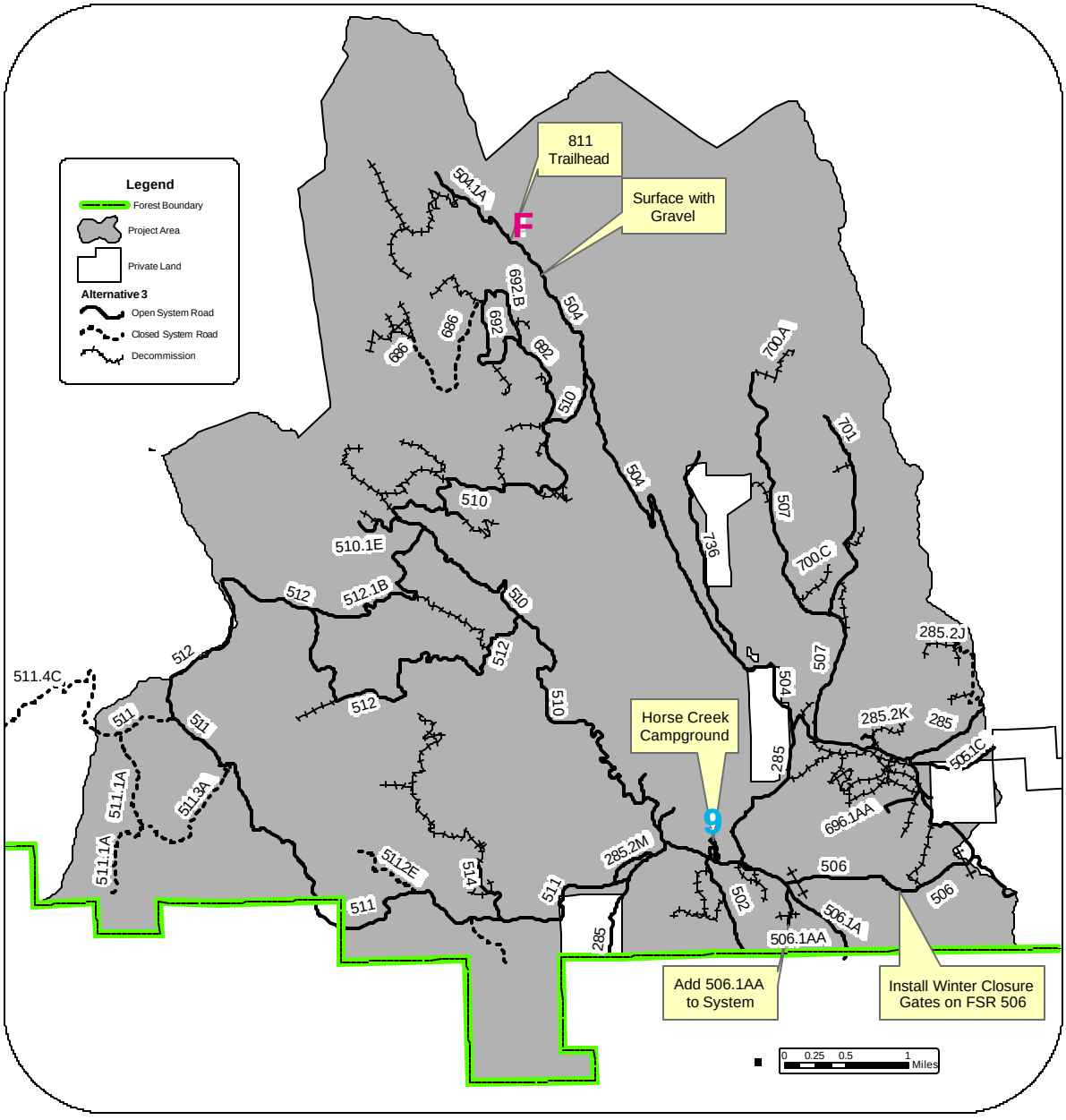

Figure 8. The FSR System under Alternative 3.

2.2.4 Mitigation Common to the Action Alternatives

These mitigation measures are integral to the project and would be included for both action alternatives.

Noxious Weeds

Prior to the initial moving of equipment to the project area, the contractor would be required to clean equipment of all soil, seeds, vegetative matter, or other debris that could contain or hold seed.

Wildlife

The contract would include the appropriate contract provisions to ensure protection of threatened, endangered, proposed, and Forest Service sensitive species. Nesting raptors would be protected by disallowing management activities within 300 feet of any occupied raptor nest from May 1 to July 31.

Activity would be limited in time by contract and would be concentrated in time to the degree possible. The contract would include a clause for temporary cessation of activities, if needed, to resolve potential or existing grizzly/human conflict(s). Food and garbage storage orders would be adhered to. Crews would be required to have bear resistant containers available for storage of attractants such as lunches, garbage, and beverages, and would be required to remove attractants from the work area each day. All crews would be trained in measures to minimize grizzly/human conflicts as well as proper attractant storage, bear behavior, recommended human behavior in conflict situations, and the use of bear repellant spray.

Soil and Water

Watershed Conservation Practices (WCPs) for soil and water conservation would be applied. The appropriate State of Wyoming Best Management Practices (BMPs) for Silviculture, which includes road decommissioning BMPs, would also be implemented. In riparian or wetland areas, operations would be allowed only to restore natural drainage patterns and riparian functions. Adequate levels of coarse woody debris would be placed on the decommissioned roads to reduce erosion and improve soil productivity.

Transportation

Use of roads would be during dry or frozen conditions to protect the transportation system from excessive damage. Traffic/safety signing would be used as appropriate; signs would be placed on access roads to alert Forest users of heavy equipment operations in the area.

Visuals

Decommissioning work would be conducted so as to blend into the surrounding landscape. Road entrances would be reshaped or disguised with organic matter (logs/limbs) in order to obscure them.

Heritage

If any previously undiscovered cultural properties are encountered during project implementation, the Forest archaeologist will be notified immediately and the area will be protected from further disturbance until a determination can be made on the newly discovered properties.

2.3 Summary Comparison of Alternatives

This section presents a comparative summary among the alternatives for resource elements and activities, environmental effects, and responses to objectives associated with the key issues. Figure 9and Figure 10 summarize the effects; Chapter 3 should be consulted for a full understanding of these and other environmental consequences.

Figure 9. Comparison of resource elements, activities, and environmental effects.

Element	Alternative 1	Alternative 2	Alternative 3
Watershed and Soil Resources			
Soil Productivity	Many existing roads experience chronic surface erosion, especially during snowmelt and summer thunderstorm activity.	Long-term soil productivity improved by decommissioning 26.1 miles of road and converting 2.2 miles & 2.1 miles to motorized & non-motorized trail (respectively).	Long term soil productivity improved by decommissioning 23.4 miles of road.
Stream Sedimentation	Existing road system continues to be a chronic source of sediment.	Stream health improved by restoring natural drainage pattern on 26.1 miles of road.	Stream health improved by restoring the natural drainage pattern on 23.4 miles of road.
Transportation System/Economics			
Road Network	51.8 miles of open system roads, 18.9 miles of closed roads, and 12.6 miles of closed primitive routes.	45.1 miles of open system roads and 7.8 miles closed system roads.	52.1 miles of open system roads and 7.8 miles of closed system roads.
Road Maintenance	Limited road maintenance funds for 51.8 miles.	Limited road maintenance funds for 45.1 miles.	Limited road maintenance funds for 52.1 miles.
Recreation and Human Uses			
Trailhead Accessibility	The 811 and 810 trailheads are difficult to access during wet periods. People typically use the 811 trailhead and the northern 810 trailhead during dry periods. The secondary 810 trailhead is used during wet periods. Parking and trailer accessibility at the 811 trailhead is a concern during heavy use.	Gravel surfacing of FSRs 504 & 507 would increase accessibility during wet periods. Enlargement of the 811 trailhead would improve conditions for vehicles with trailers and increase parking. The 810-trailhead would be moved south and the trail length increased by 2.1 miles.	Gravel surfacing on FSR 504 would improve the 811-trailhead accessibility. Enlargement of the 811-trailhead would improve conditions for vehicles with trailers and increase parking. The 810 trailheads & trail would be abandoned.
Recreational Public Access	51.8 miles of open road	45.1 miles of open road, 2.2 miles of designated motorized trail, and 2.1 miles of new non-motorized trail	52.1 miles of open road and abandonment of Trail 810

Figure 10. Comparison of the transportation system by alternative.

Transportation System	Actions	Alternative 1 (miles)	Alternative 2 (miles)	Alternative 3 (miles)
Motorized Access	Open System Roads	51.8	45.1	52.1
	Designated Motorized Trail	0	2.2	0
	Motorized Subtotal =	51.8	47.3	52.1
Non-motorized Access	Closed System Roads	7.8	7.8	7.8
	Closed Roads	11.1	N/A	N/A
	Closed Primitive Routes	12.6	N/A	N/A
	Decommission/obliterate	N/A	26.1	23.4
	Non-motorized Trail	N/A	2.1	0
	Non-motorized Subtotal =	31.5	36	31.2
	Total =	83.3	83.3	83.3

Chapter 3 Affected Environment and Environmental Consequences

This chapter includes both the affected environment and environmental consequences. The resources affected are identified and analyzed. The level of detail is commensurate with the amount of information necessary to understand the effects of the actions. The effects discussions presented in this chapter are summaries of information from the Horse Creek Watershed Assessment and Roads Analysis (USDA FS 2000a and 2000b), and the ID team resource specialists, their meeting participation, and their input into the document. The summaries focus on the resource issue and project goals disclosed in Chapter 1.

The analysis area for the majority of the resources analyzed is the non-wilderness Forest Service land within the Horse Creek watershed (see Figure 1). The analysis area is 25,342 acres in size and includes 650 acres of private land. The proposed treatment area on roads is approximately 50 acres (average treatment width of 15 feet). The period over which effects are projected for the analysis is 10 to 20 years.

3.1 Aquatic Ecosystems

Sediment

Most sediment delivered to streams comes from a source zone along streams whose width depends on topography, soils, and ground cover. Connected disturbed areas like roads and other disturbed soils near streams can deliver sediment during runoff events. Sediment deposits in streambeds can harm insect populations and fish reproduction.

Natural erosion processes within the watershed are dominated by mass wasting in the Tepee Trails formation, rotational slides and slumps in the Madison formation, and Quaternary glacial deposits, rock slides and debris flows in the Wiggins formation, and in-channel bank and bed scour and fill, and sheet, rill, and gully erosion in areas of little to no vegetative cover (Shoshone NF, 2000a).

The watershed assessment (Shoshone NF 2000a) identified unacceptable effects on stream health from erosion and sedimentation related to roads; the following factors were cited: the lack of road maintenance, road use during wet periods, inadequate or lack of road design, and road length extension by users. The currently open road system suffers from a general lack of maintenance, especially on lesser-used roads (limited funds are used to maintain roads with more traffic). Also, many roads are used during wet periods. This combination can lead to rutting, failure of road drainage structures, excessive surface erosion, and sediment inputs directly into streams or other waterbodies. Closed roads and primitive routes do not receive maintenance, are sometimes used during wet periods, and are sometimes extended and/or created by users. Many of these roads were not adequately designed to meet current standards and guidelines. The closed roads and primitive routes are in varying states of recovery, but several have not fully revegetated. These roads/routes continue to receive use, are exposed to surface erosion, and many are currently a chronic source of fine sediment.

Alternative 1 (no-action) does not adequately address the effects of the roads in the watershed. Problems linked to the open roads could be improved with regular maintenance, but this alternative does not properly address the effects of closed roads and primitive routes. Although existing road closures could be improved under Alternative 1, Alternatives 2 and 3 would be more effective and produce the desired results sooner.

Alternatives 2 and 3 would address several of the road related effects. Surface erosion and sediment production would be reduced on the treated segments by decreasing soil compaction, improving water infiltration, establishing effective ground cover, restoring the natural drainage patterns, and vegetative cover. Alternative 2 provides the greatest improvement in watershed condition by decommissioning 23.7 miles of closed roads and primitive routes and 2.4 miles of open road (FSR 504.1A and 692), converting 2.1 miles of FSR 507 to a non-motor trail and 2.2 miles of FSR 512 to a motorized trail, and gravel surfacing portions of FSR's 504 and 507. Decommissioning of FSR 504.1A under alternative 2 would restore a problem stream crossing where the streamflow has been diverted out of its natural channel and down the road, which has caused erosion of the roads surface and sediment production (Photo 1). Gravel surfacing of FSRs 504 and 507 would decrease erosion and address effects from lack of road maintenance and use during wet periods. FSRs 504 and 507 become

heavily rutted from use during wet periods (Photo 2), which results in damage to the drainage features on the road.

Photo 1. Stream crossing on FSR 504.1A where stream flow is diverted down the road.

Photo 2. Heavy rutting on FSR 504 resulting from use during wet periods.

Alternative 3 would improve watershed condition in much the same way as Alternative 2. However, under Alternative 3, FSR's 504.1A, 506.1AA, 692 (2.7 miles) would not be decommissioned, FSR's 507 and 512 would not be converted to trails, and FSR 507 would not be surfaced with gravel. The stream crossing on FSR 504.1A could be improved through regular road maintenance.

Although there may be a short increase in sediment production immediately following implementation, the long-term benefits of Alternatives 2 and 3 would be a reduction in erosion, sedimentation, and the total disturbed area within the watershed. Implementation of best management practices (BMPs) would minimize short-term effects.

The action alternatives would restore the disturbed area associated with the northern 810-trailhead. Both action alternatives would enlarge the 811-trailhead, which is located in close proximity to Parque Creek. The 811-trailhead design must include the proper *Watershed Conservation Practices* and BMPs in order to reduce the risk of trailhead associated sediments from reaching Parque Creek.

Bed/Bank Stability

Bed and bank stability can be damaged from vehicle impact or degraded bank vegetation. Streams can be made wider and shallower, pools and overhanging banks can be destroyed, and much sediment can be added to streams.

Alternative 1 does not address restoring the bed/bank stability of stream channels at road crossings, especially on closed roads and primitive routes. Stream channel crossings on open roads, such as that on FSR 504.1A (Photo 1), could be improved through regular road maintenance. However, FSR 504.1A rarely receives maintenance due to limited funding.

Alternatives 2 and 3 would improve bed/bank stability by restoring the natural drainage patterns on several roads with stream crossings. The action alternatives would reduce soil compaction and provide for riparian vegetation recovery. Photo 3 is of the Little Horse Creek crossings on closed road 514.2. The streambanks lack vegetation and the stream channel has widened at the crossing. Alternatives 2 and 3 would restore this crossing.

Photo 3. Little Horse Creek crossing on FSR 514.2; bare stream banks and widened channel.

Alternative 2 provides a greater opportunity for bed/bank enhancement by decommissioning more roads than Alternative 3. Specifically, Alternative 2 would decommission FSRs 504.1A, 692, and 506.1AA. FSR 504.1A has a problem crossing and 506.1AA provides access to a dispersed camping area located within water influence zone (100 foot buffer) of Horse Creek.

Heavy equipment use in or near stream channels would only be allowed only for restoration purposes. Trail 811 crosses Parque Creek near the trailhead. Trailhead improvement work would include the armoring of the approach, as needed, in order to reduce sediment entering the creek.

3.2 Soil Productivity

Soil Erosion and Soil Compaction

Severe erosion can impair long-term soil productivity if soils are heavily disturbed on shallow or highly erodible soils. Soil compaction is caused by excess weight of vehicles and animals. It impairs infiltration, root growth, and soil biota.

The watershed assessment (Shoshone NF 2000a) also identified unacceptable effects on soil productivity from roads due to a lack of road maintenance, use during wet periods, inadequate or lack of road design, and road length extension by users. Photo 4 shows the surface erosion occurring on road 686, which has resulted in rills (ruts) several feet long and ½ – 1 foot deep. Photo 5 shows how vegetation has been removed on a primitive two-track route, which has exposed soils to erosion. Many roads have been closed for several years, but they have not fully recovered because soil compaction has decreased the soil productivity of those sites. Alternative 1 does not address restoring the soil productivity on such sites.

Photo 4. Surface erosion on route 686; note long rills where soil has been eroded away.

Photo 5. Primitive route 285.2L is a user-created two-track on steep slope.

Alternatives 2 and 3 involve a short-term disturbance in order to restore infiltration properties, vegetative and organic ground cover, and the natural drainage patterns on the treated sites. Alternatives 2 and 3 would improve soil productivity, reduce soil compaction, and reduce long-term erosion from the treated areas by ripping the road surface and placement of woody debris. On routes that have been closed for several years and grass and forb revegetation has occurred, soil productivity would be increased through the placement of organic material such as woody debris. These actions will restore soil properties that improve water infiltration, root growth, and soil biota. The results could improve shrub and tree growth on the treated sites.

The action alternatives would reduce erosion at the northern 810 trailhead. The enlargement of the 811 trailhead under both action alternatives would increase the disturbed area at the trailhead. However, proper WCP and BMP implementation would reduce the erosion occurring at the site.

3.3 Special Areas

Riparian Ecosystems, Wetlands, and Floodplains

Riparian ecosystems provide shade, bank stability, fish cover, and woody debris to aquatic ecosystems. They also provide key wildlife habitat, migration corridors, sediment storage and release, and surface-ground water interactions. Composition and structure of riparian vegetation can be changed by actions that remove certain species and age classes. Wetlands control runoff and water quality, recharge ground water, and provide special habitats. Actions that may alter their ground cover, soil structure, water budgets, drainage patterns, and long-term plant composition can impair these values. Floodplains are natural escape areas for floods that temper flood stages and velocities.

Activities would occur in riparian ecosystems, wetlands, or floodplains only to restore vegetative cover, ground cover, natural drainage pattern, and soil properties. Any activities in these areas would occur only to enhance or restore the characteristics of that area.

3.4 Rangeland

FSR 285 provides motorized access to the Ramshorn, Parque Creek, Horse Creek, and Wiggins Fork grazing allotments. Permittees use FSR 285 and other roads intersecting with it for vehicle access to rotate livestock and to access range improvements for annual maintenance (Shoshone NF 2000b).

3.4.1 Sensitive Plants

Seventeen plant species on the Region 2 sensitive species list are known or suspected to occur on the Forest. A review of the habitat requirements of those species in relation to the habitats in the analysis area is displayed in Appendix C. According to the literature review, five of these plants may possibly occur within the analysis area. However, none were observed in a field survey in July 2002.

Effects on Sensitive Plants

Under Alternative 1, no management effects would occur to sensitive plants. For the action alternatives, it was concluded that sensitive plants and their possible habitat would not be impacted during road decommissioning.

Determination

Because of the above factors, any of the action alternatives may affect individuals but are not likely to cause a trend to federal listing or loss of viability of sensitive plants.

3.4.2 Noxious Weeds

Noxious weed monitoring suggests infestation levels are increasing (Shoshone NF 2000a). Currently there are mapped populations of Canada thistle (*Cirsium arvense*) and hoary cress (*Cardaria chalapensis*) within the watershed. There is currently a potential for the introduction and spread of other species because seeds are easily dispersed via vehicle activity and tend to follow and spread along road corridors, trailheads, stock trails, and campgrounds. Motorized use on closed roads and primitive routes, along with road length extension, increases the potential for spread and new introductions. Alternative 1 does not properly address the need to control

motorized use to designated open roads. Alternatives 2 and 3 will decommission ineffective closed roads and primitive routes, thereby reducing the potential for noxious weed spread and introduction.

A Forest representative would inspect heavy equipment prior to use on this project for noxious weed seeds. Equipment that is suspected of carrying seeds would be washed thoroughly.

3.5 Wildlife

The wildlife resource is addressed in several different categories: threatened and endangered species, regionally designated sensitive species, Forest Management Indicator Species, and Wyoming Priority Bird Species. The Biological Evaluation for determination of effects to threatened, endangered, proposed, and sensitive species has been completed and is incorporated into this EA.

3.5.1 Threatened and Endangered Species

All proposed, endangered, and threatened species known to occur on or near the Shoshone National Forest were considered in this analysis as part of complying with the Endangered Species Act. Effects analysis was completed for any species that occur or could possibly occur within the analysis area. To determine which species could occur within the analysis area, species occurrence records for the area were checked and the habitat requirements of the species were compared with the habitat present in the analysis area (Appendix C). Any species determined unlikely to occur in the analysis area was not carried into further analysis and given a no effect determination. A Biological Assessment (BA) of effects to threatened, endangered, and proposed species has been completed and is incorporated into this EA.

Canada Lynx

The Fish and Wildlife Service published a Final Rule in the Federal Register on March 24, 2000 listing the North American lynx population in the contiguous United States as a threatened species. The Forest Service is currently working under the Canada Lynx Conservation Agreement, which states that the federal agencies will consider and attempt to follow the recommendations set forth in the Lynx Conservation Assessment and Strategy (LCAS) (USDA FS et al., 2000).

Effects on Lynx

Alternative 1 would change no habitat and have no activity period; there would be no change in habitat suitability for lynx.

None of the actions (road obliteration, road to trail conversion, or trailhead enlargement or relocation) in any of the action alternatives occur in lynx habitat or will not adversely affect lynx habitat. This project affects 0% of the suitable lynx habitat and therefore would not lead to a change of more than 15 percent of lynx habitat within the LAU to an unsuitable condition within a 10-year period and thus is within the standards established in the Canada Conservation Lynx Assessment and Strategy. In the long-term, reduced road density may benefit lynx and their habitat by reducing motorized travel during the snow-free and winter periods.

Determination

Therefore, no direct, indirect, or cumulative effects to lynx would occur, and any alternative of this project has a "no effect" determination for lynx.

Grizzly Bears

The officially designated grizzly bear recovery area occurs in or immediately adjacent to the Washakie Wilderness within the Horse Creek analysis area. The project areas for the Horse Creek watershed improvement occurs outside the recovery zone and thus are in areas of the forest where the Recovery Plan has not directed management for bears and their habitat. Federal agencies, such as the Shoshone National Forest, are required to conserve listed species, such as the grizzly bear, and not jeopardize their continued existence wherever they occur.

Effects on Grizzly Bears

Design criteria such as the use of the food and garbage storage regulations while operations are occurring to minimize potential adverse effects on grizzly bears were integrated into design of the project for both action

alternatives, and would be included as conditions in any associated contracts and operating plans as necessary and appropriate. Because conflict prevention and resolution measures are part of the proposal, no acclimation of bears to human food would be expected in the short term, and no mortality of bears would be expected.

None of the actions (road obliteration, road to trail conversion, or trailhead enlargement or relocation) in any of the alternatives will adversely affect bear habitat. Road obliteration that reduces open and total road densities should improve grizzly bear habitat. The activities to complete the road obliteration actions, convert a segment of road to trail, or enlarge or relocate a trailhead will be of short duration and therefore, would be unlikely to directly impact any individuals, except to possibly temporarily displace them. There would be no cumulative effects from this project, as the project has no effects.

Determination

In general, it appears that the Horse Creek project would not adversely affect habitat conditions for bears in the analysis area or increase the potential for grizzly bear/human conflicts and bear mortalities, over existing conditions. Because no new roads are being constructed, the scope of project is very small, that secure habitat in the analysis area will increase as the road density decreases, and treatments occur within close proximity of roads, where human disturbance already exists, the project will have "no effect" on the grizzly bear or its habitat.

Gray Wolf

The gray wolf is formally listed as threatened; it was reclassified as non-essential, experimental in the Yellowstone area with the publication of the Final Rule in the Federal Register (November 22, 1994; Vol. 59, No. 244). The species was reintroduced in the Yellowstone National Park area in 1995 and as a non-essential experimental population is managed as a proposed species outside of the National Parks and Refuges. This designation provides greater flexibility in the management of wolves and allows greater accommodation in land use activities.

Effects to Wolves

Wolves would not be affected by this project under either action alternative, as very little habitat modification will occur. Under either action alternative, wolves may avoid the areas while road obliteration activities are occurring, but this is only for a short period and would be beneficial to the wolf in the long term. The open motorized access route densities would decrease with implementation of any of the alternatives that would improve habitat in the analysis area for big game and other wildlife by reducing road densities. This is a minimal effect as low acreages would be treated but may be enough to influence prey distribution in this area, however big game population numbers in the herd units will likely not change.

According to the Federal Register (Vol. 59, No. 244) "there are no conflicts envisioned with any current or anticipated management actions of the Forest Service. The national forests are beneficial to the reintroduction effort in that they form a natural buffer to private properties and are typically managed to produce wild animals that wolves could prey upon." Since it is an experimental population and six breeding pairs have been established, no land use restrictions may be employed on National Forest System lands, as wolf population growth rates have remained positive toward population recovery levels (50 CFR Part 17.84(xii)(4)).

Determination

Therefore, the actions from either alternative will not jeopardize the continued existence of wolf in the wild or the experimental population, and thus will not jeopardize the recovery of the gray wolf.

3.5.2 Sensitive Species

All Regionally designated sensitive species for Region 2 that are known to occur on or near the Shoshone were considered in this analysis. Effects analysis was completed for any species that occur or could possibly occur within the analysis area. Any species determined unlikely to occur in the analysis area was not carried into further analysis. To determine which species could occur within the analysis area, species occurrence records for the area were checked, and the habitat requirements of the species were compared with the habitat present in the analysis area (Appendix C).

Sensitive species that occur, or could occur, in the analysis area have been grouped according to the habitats in which they occur; effects from the project are discussed in that context. Additional limiting factors will be listed if it is helpful in determining effects, or the significance of effects, on the species.

Subalpine Meadows

This habitat, which is present in the analysis area, is potential habitat for the dwarf shrew.

Because many of the closed roads that are planned for obliteration are roads that have been pioneered through sagebrush and grassland meadows, this project has the potential to improve these habitats by the restoration that will occur overtime as these two tracks through the meadows recover. So these species would not be directly, indirectly, or cumulatively affected and may be benefited by these activities.

Determination

Since this habitat type should benefit from this project, there will be "beneficial impact" on the dwarf shrew.

Coniferous Forest Habitat

Species that occur or could occur in this habitat type as it appears in the analysis area are: marten, fisher, wolverine, northern goshawk, boreal owl, black-backed woodpecker, northern three-toed woodpecker, olive-sided flycatcher, and golden-crowned kinglet.

This project would not change the available coniferous forest habitat in the analysis area. None of these sensitive species would be directly or indirectly impacted by this action. There are no other known actions that would impact these species in this area, so there would be no cumulative impacts.

Determination

Because of the habitat not being adversely impacted, this project will have "no impact" on marten, fisher, wolverine, northern goshawk, boreal owl, black-backed woodpecker, northern three-toed woodpecker, olive-sided flycatcher, and golden-crowned kinglet.

Riparian/Aquatic Habitat

Species that occur or could occur in the analysis area in riparian or aquatic habitats are: water vole, harlequin duck, greater sandhill crane, fox sparrow, tiger salamander, boreal toad, northern leopard frog, and spotted frog.

This project would not impact any wetland, pond, or streamside areas. This project is designed to improve the watershed by reducing the amount of roads, many of which are contributing to erosion and sedimentation in the watershed. Thus these actions in any of the action alternatives could benefit these riparian and aquatic species.

Determination

Because of the habitat not being impacted and the road obliteration may benefit habitat for these species in the long-term, this project is a "beneficial impact" for the water vole, harlequin duck, greater sandhill crane, fox sparrow, tiger salamander, boreal toad, northern leopard frog, and spotted frog.

3.5.3 Management Indicator Species

Seventeen wildlife species (Appendix C) in addition to game trout, were selected during the forest planning process to be management indicators. The Management Indicators Species (MIS) for the Shoshone include five featured species that are hunted, five recovery species, and seven ecological indicator species. Methods used to select indicator species or groups of species are explained in the planning records for the Forest's Land and Resource Management Plan. Those MIS (or their habitats) that may be affected by this proposal were evaluated relative to the effects of this action and will be addressed in this document.

Management Indicator Species habitat relationships used at the time the Forest Plan was written were revalidated in 2002 (Shoshone National Forest Management Indicator Species (MIS), Version 2.0 November 27, 2002). Forest-wide population trend information for all MIS are documented annually in the Forest's monitoring reports.

Elk

Effects

None of the actions (road obliteration, road to trail conversion, or trailhead enlargement or relocation) in any of the alternatives will adversely affect elk habitat. Road obliteration that reduces open and total road densities should improve elk habitat. The amount of habitat enhancement in either action alternative would increase security habitat for elk, but would unlikely influence herd unit population numbers. As with all game animals, a big factor in population size is hunting regulations. The activities to complete the road obliteration actions, convert a segment of road to trail, or enlarge or relocate a trailhead will be of short duration and therefore, would be unlikely to directly impact any individuals, except to possibly temporarily displace them. There would be no cumulative effects from this project, as the project has no adverse effects.

Mule Deer

Effects

The effects described above for elk would be similar for mule deer. Mule deer are generally more tolerant of open road disturbance than elk, but could also benefit from more foraging and secure habitat that would be created by either action alternative once activities are completed and the obliterated roads revegetate. Overall, as with elk, hunting regulations are the biggest factor influencing populations and this project will have little effect.

Moose

Effects

The effects described above for elk would be similar for moose. Moose are generally even more tolerant of open road disturbance than mule deer and elk. But could also benefit from more foraging and secure habitat that would be created by either action alternative once activities are completed and the obliterated roads revegetate. Overall, as with elk, hunting regulations are the biggest factor influencing populations and this project will have little effect.

Brewer's Sparrow

Effects

Because many of the closed roads that are planned for obliteration are roads that have been pioneered through sagebrush and grassland meadows, this project has the potential to improve these habitats by the restoration that will occur overtime as these two tracks through the meadows recover. So Brewer' sparrow would not be directly, indirectly, or cumulatively affected and may be benefited by these activities.

Beaver

Effects

This project would not impact any wetland, pond, or streamside areas. This project is designed to improve the watershed by reducing the amount of roads, many of which are contributing to erosion and sedimentation in the watershed. Thus these actions in any of the action alternatives could benefit this riparian and aquatic species.

3.6 Fire and Fuels

The decommissioning of 4.6 miles of open roads (FSR 504.1A, 692, and 507)[2] under Alternative 2 and other closed roads and primitive routes under Alternatives 2 and 3 will not significantly decrease initial attack capabilities. These roads are rough going and weather dependant. Response is quicker with helitack or smokejumper crews. The gravel surfacing on FSR 504 and 507 would provide quicker response times than the Alternative 1. The conversion of FSR 512 to a motorized trail would still allow reconnaissance via ATV when a smoke is reported in that area, though aerial resources would most likely still be utilized. The use of ATVs to respond to fires is not standard operating procedure at this time. A helicopter is usually the first equipment used to determine the location of the fire, accessibility, and the most appropriate management response.

[2] Under Alternative 2, the 2.2 miles of FSR 512 converted to motorized trail would still be available for motorized initial attack.

Future Fuels management activities may occur around the property of T-Cross Ranch and are located along the west side of the property. Converting FSR 507 into a trail would not affect that project. Given weather patterns that generally have a westerly component, fires to the east of T-Cross ranch should move eastward. Other than T-Cross Ranch, the current focus for fuels management on the District will be elsewhere for the foreseeable future based upon current priorities.

3.7 Transportation

Several maintenance needs exist in the analysis area. Deferred maintenance surveys completed in 1999 reveal critical health and safety maintenance work items of $59,000 for the entire length of FSR 285 and $6000 for FSR 511. However, the analysis area contains less than one-third of the entire length of FSR 285 and this section has had more improvements than the rest of the road. Therefore, an estimate of $10,000 to $20,000 may be more accurate for analysis area.

FSRs 504 and 510 have safety sight distance and surface maintenance concerns. These single lane roads wind through the forest with limited turnout opportunities. The fine native materials are slippery when wet and provide less than adequate traction and load support for the expected traffic, creating large mudholes, ruts, and opportunities to slide off the road and/or get stuck. Many side roads are not surfaced and create similar conditions. Risks include vehicle damage and threats to personal safety (Shoshone NF 2000b). Figure 10 in Chapter 2 describes the road system under each alternative. The action alternatives would move the road network towards the desired condition defined during the roads analysis process.

3.8 Recreation and Human Uses

Roads make it easier for people to get closer to their destination points for a wide range of uses including commercial activities and recreation-oriented activities. Many people develop a tie to a particular road, as it provides access to the place they go every year to hunt, fish, cut firewood, or just visit. Therefore, activities that change the character or use on a particular road may affect individuals personally. Comments received for this project and previous projects indicate that people desire access for a variety of reasons. Many individuals do not want access to the national forest restricted. Road management affects access in that it may change the modes of transportation some people use to access the Forest. Closing or decommissioning roads would require more walking or horse riding and limit commercial opportunities. Providing motorized trails for authorized ATV use would help to satisfy a growing demand in this area and provide another mode of transportation for legal access (Shoshone NF 2000b). Figure 11 summarizes the public access provided by the alternatives.

Figure 11. Public access provided by alternative.

Alternative 1	Alternative 2	Alternative 3
51.8 miles of open road Trailheads difficult to access during wet periods	45.1 miles of open road 2.2 miles of designated motorized trail 2.1 miles of new non-motorized trail 810 & 811-trailhead accessibility improved through gravel surfacing of FSR 507 & 504	52.1 miles of open road 811-trailhead accessibility improved through road gravel surfacing of FSR 504. 810-trialhead and trail abandoned

Alternative 1 provides motorized access on 51.8 miles of open roads. However, motorized use is currently occurring on eighty-eight percent of the closed roads and primitive routes even though these roads are technically closed (refer to Figure 5 and section 1.4.1).

Alternative 2 would decommission 2.4 miles of open road; convert 2.2 miles of open road to a motorized trail and 2.1 miles to a non-motorized trail; decommission 11.1 miles of closed road and 12.6 miles of primitive routes. The result would be a loss of 6.7 miles of open road by decommissioning FSR 504.1A (0.9 miles), 692 (1.1 miles), 512 (2.2 miles), 696.1AA (0.4 miles), and 507 (2.1 miles). This small amount of decommissioning would not preclude the use and enjoyment of the area since FSR 692 is simply a short-cut route between existing roads and 512 would be converted to a motorized trail. FSRs 504.1A and 507 dead-end at trailheads and there would be some inconvenience to those users who could not drive as far as they have in the past. The trade-

off is that the road to the new trailhead locations would be improved so that they are safer to use during inclement weather. The road decommissioning techniques (e.g., placement of large organic matter) applied may make it difficult for users such as hunters, hikers, and equestrian users to travel on the decommissioned routes. These techniques may decrease hiking and horseback access on decommissioned routes.

Alternative 3 would increase the amount of open roads within the watershed by 0.3 miles with the designation of 506.1AA as an open road. However, 11.1 miles of closed roads and 12.3 miles of primitive routes would be decommissioned. The 810 trailheads and trail would be abandoned. Backcountry access would be provided by the 811trailhead. As a result, the only impact to users would be possibly from some of the decommissioning techniques (e.g., placement of large organic matter) applied may make it difficult for users such as hunters, hikers, and equestrian users to travel on the decommissioned routes. These techniques may decrease hiking and horseback access on decommissioned routes.

3.8.1 Roadless and Wilderness Areas

Figure 12 shows nearby roadless and wilderness areas. The Washakie Wilderness is the project areas northern boundary. FSR 504.1A runs along the boundary of the Carson Lake Roadless Area. A portion of FSR 507 (open road) and 700.A (closed road) enter Carson Lake Roadless Area. Alternatives 2 and 3 would decommission 700.A. FSR 504.1A and 507 would be decommissioned and converted to trail under alternative 2. Given the location of these roads, they do not impeach the roadless characteristics nor do they preclude the possible inclusion into wilderness designation.

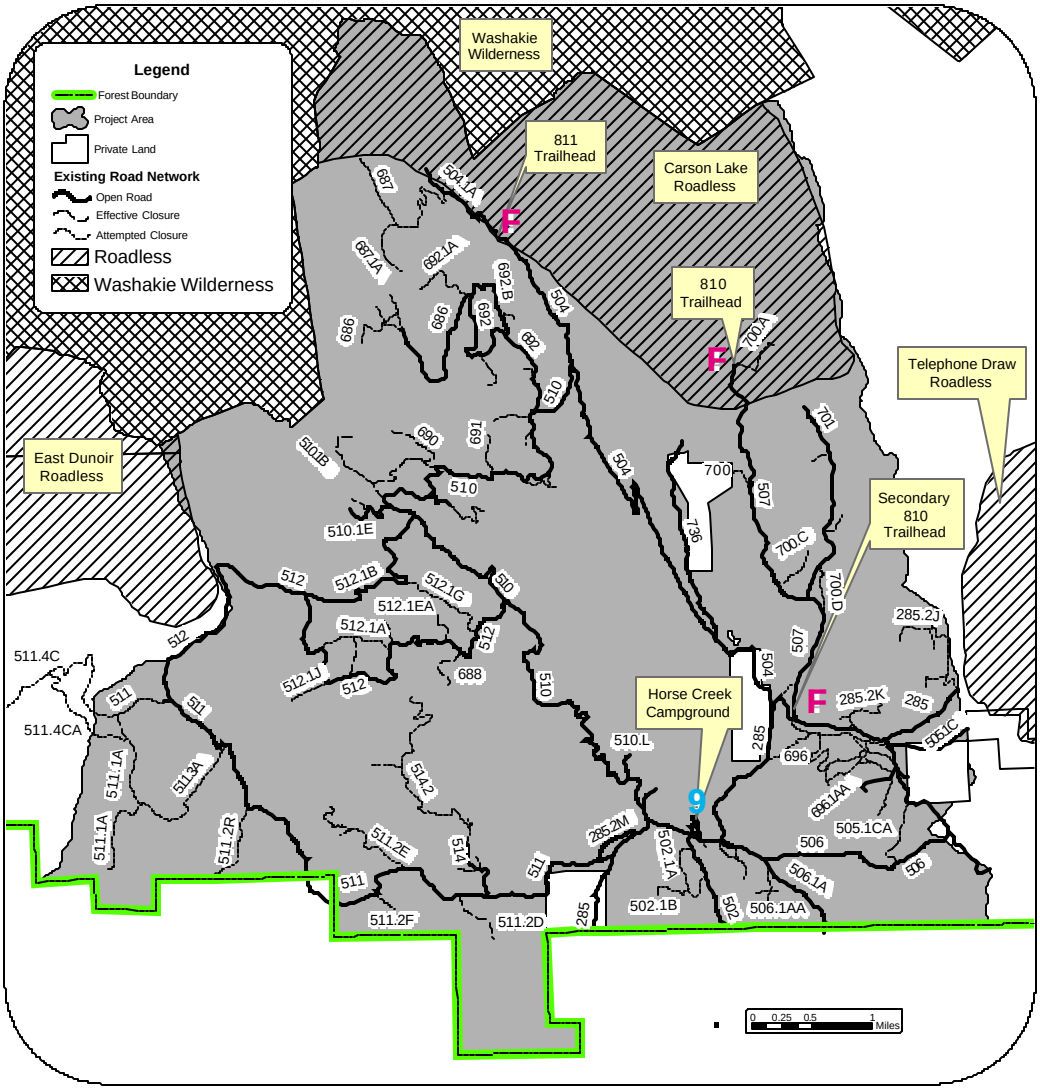

Figure 12. The existing road network in relation to roadless and wilderness areas.

3.9 Heritage Resources

Road Decommissioning and 811-trailhead Enlargement (Alternatives 2 & 3)

Class I and III surveys have been completed for the areas proposed for road decommissioning and the area of the 811 trailhead enlargement. The cultural resource documentation called for in 36 CFR Part 800 has been completed for these areas. No direct effects would result from implementation of any alternative in regards to road decommissioning and enlargement of the 811trailhead. A concurrence letter from the State Historic Preservation Offices (SHPO) is located in the project file.

Construction of New 810-Trailhead (alternative 2)

A cultural resource inventory of the area proposed for construction of the new 810 trailhead under Alternative 2 has not been completed. No decision shall be made to construct that trailhead until the Forest completes the inventory and documentation called for in 36 CFR Part 800, and receives a concurrence letter from the SHPO.

3.10 Transportation System Economics

The transportation system in the analysis area is not different from the rest of the District in that the level of maintenance has fallen off over the years. In the past, timber sale purchasers accomplished a large part of the maintenance work. The decline in the number of timber sales has resulted in a reduction in the miles of road maintained in this manner. That has meant the maintenance needs has to come from the roads budget and that funding has not be adequate to fully maintain the existing roads. The result is that there is a growing backlog of work necessary to bring the roads up to standard with regards to safety and environmental concerns.

To put the situation in perspective, the road budget for the two Districts on the south end of the Forest has averaged $135,500 over the past three years. In the analysis area alone the following needs have been identified:

- To address the critical health and safety maintenance needs on FSRs 285 and 511 (level 3 roads designed for passenger car travel) about $15,000 is needed
- To bring FSRs 504, 507, 510, 510.1E, 512, 512.1B, and 692 (popular level 2 roads designed for high clearance vehicles) up to standard would cost about $546,800
- To perform the basic level of maintenance on the system would cost about $25,000 per year

This does not include the costs associated with having to fix any environmental problems that arise from the unauthorized use or inherent design shortcomings of the currently closed roads or primitive routes.

Consequently, to meet the direction of the Forest Plan (Figure 4) of trying to match the transportation needs for resource management while meeting the constraints of funding and environmental impacts there needs to be some level of decommissioning of roads/routes to reduce the costs of the transportation system.

Alternative 1 would not meet the intent of the Forest Plan because without any decommissioning, there would be no reduction in costs and there would be more roads than necessary for the management of the resources.

Alternatives 2 or 3 would begin the process of matching the level of funding to the transportation system costs. There would still be maintenance backlogs that will take years to address given the current and expected road budgets.

The Horse Creek watershed is a popular area for both motorized and non-motorized recreation activities. Local economies benefit by recreation as people purchase local goods and services. Commercial activities may provide goods and local job opportunities (Shoshone NF 2000b). There is no expected discernible change to the economic impact to the local communities given the small changes in the open road mileage that would occur under any of the alternatives. The majority of work would involve decommissioning currently closed roads and primitive routes. The amount of open road mileage would not change appreciably and would continue to provide the motorized user with ample opportunities to see and enjoy the area.

3.11 Cumulative Effects

3.11.1 Past, Present, and Reasonably Foreseeable Future Actions

The cumulative effects analysis documented here examined the impacts of the two action alternatives in conjunction with the incremental effects of past, present, and future projects that may occur near the Horse Creek analysis area. Past, present, and foreseeable future actions include timber sales, livestock grazing, oil drilling, and recreational uses. The boundary within which cumulative effects are analyzed is the non-wilderness Forest Service portion of the Horse Creek Watershed.

General History

Initial roading, mostly wagon roads, occurred during the tiehack era (early to mid 1900s). Construction of designed roads occurred during the 1950s and 1960s with commercial timber harvest activity. Minimal construction has occurred since. However, increased ATV and off highway vehicle use has, and continues to, result in expansion of the road network. Formal travel management was initiated in the mid-1970s. The road network has deteriorated due to lack of maintenance and increased use (Shoshone NF 2000b).

Past Activities

Past management activities in the watershed have included timber harvest, livestock grazing, recreational uses, road construction, and road decommissioning and closure.

Present Activities

The following projects are ongoing or planned in the near future: Rainbow Lake Timber Sale, Horse Creek Timber Sale, and Cartridge Creek II Timber Sale.

Reasonably Foreseeable Future Actions

Planning and NEPA work is currently being conducted for the future projects. The Horse Creek/Wiggins Fork vegetation treatment project may include the T-Cross fuels reduction project, aspen enhancement, range improvement, roadside clearing, prescribed burning, and forest health treatments. Another future project may be Scott Well #2.

The watershed assessment produced several recommendations other than the proposed action. The recommendations may result in future projects and include the following:

- Increase road and trail maintenance activity on the classified road system to reduce erosion and sediment delivery to streams and wetlands and to improve user comfort.
- Aggressively manage forest vegetation, through the use of timber harvest and prescribed fire, to regenerate aspen, control insect and disease infestation, and reduce the risk of catastrophic wildfire.
- Maintain and improve Yellowstone cutthroat trout habitat and numbers by installing barriers to upstream migration, removing non-native fishes, and stocking pure strains.
- Maintain and improve lynx security by restricting snowmobile use in parts of the watershed and by implementing vegetative management projects that will result in a varied, seral stage forest.
- Eliminate dispersed camping directly below the Horse Creek bridge to reduce water quality impacts.
- Aggressively treat noxious weeds, particularly along primary travel routes.
- Continue aggressive implementation of the current livestock grazing allotment management plan.
- Maintain past bank stabilization work above and below Horse Creek campground.
- Reconstruct Horse Creek Campground.
- Continue monitoring riparian and wetland condition in areas grazed by domestic livestock.
- Monitor stream channels in areas of past timber harvest.
- Continue monitoring noxious weed infestations.
- Monitor water quality below Five Pockets and the Horse Creek campground for fecal bacteria.

The roads analysis identified the following opportunities related to roads:

- Reconstruct portions of FSR 285, add turnouts for safety sight distance, replace/add culverts, improve drainage, add surfacing to stabilize the surface, and add bank stabilization along Horse Creek.

- Reconstruct portions of FSR 510, including the stretch from FSR 285 to the intersection with the Horse Creek Guard Station road, to improve drainage and the road surface, disconnect waters, reconfigure the intersection with FSR 504.
- Reconstruct portions of FSR 504, to include the segment in the floodplain at the bridged crossing of Horse Creek, perform required maintenance on the bridge and replace or reconstruct as necessary.
- Improve the closure gate on FSR 511 to prohibit use by high-clearance motorized vehicles and sign for non-motorized use.
- Maintain the seasonal closure on the Brent Creek Road.
- Construct (or reconstruct) access into the area currently accessed by FSR 514.2 for future planned vegetative treatment. Location is dependent upon soil stability concerns.
- Construct a continuation of Road 511.2D into section 35 for future planned vegetative treatment.
- Annually monitor the Blue Slide and other known slide areas and assess the need to reconstruct or relocate to retain the required access.
- Ensure adequate closures and monitor annually.
- Closures on closed roads shall be in force annually and may be any physical barrier that best fits the location and the reason for closure. The district ranger may allow administrative use of closed roads.
- System roads shall be maintained consistent with the documented and approved maintenance level.

3.11.2 Cumulative Effects

This section discloses cumulative effects from past and present activities, effects of the action alternatives, as well as effects of reasonably foreseeable activities that are likely to occur within the analysis area over the next 10 to 20 years. Cumulative effects are primarily a result of previous logging, roading, fire suppression, grazing, recreation uses, along with the effects from the action alternatives and any projects likely to occur in the near future.

Cumulative Effects on Wildlife Resources

Sources of impacts or change are those activities, developments, or events that, cumulatively, have the potential to change biological or physical character of a given area. Sources of change include forest management activities that alter vegetation, such as timber sales, or developments that cause increases in use, such as road construction. Other sources of impact that might be associated with adjacent land use are subdivision developments, oil and gas development, and wildfires.

Past sources of impact in the wildlife areas of concern included, domestic livestock grazing, commercial timber harvest, precommercial thinning, hunting, oil and gas exploration, horseback riding, fishing, personal use firewood gathering, camping, and general dispersed recreation. Some of these past activities have occurred over a long period of time and many presently occur. Past modifications to wildlife habitat have come primarily from the establishment of roads, harvest of timber, grazing of livestock, residential development adjacent to National Forest System lands, and suppression of wildfire.

The current conditions within the areas of concern are a result of a combination of past and present activities, both natural and human-caused. For the purposes of this analysis, the management activities and natural events considered as having potential influence during the past, present, or reasonably foreseeable future are road construction, timber harvest, natural disturbances, residential development, off-road vehicle use, and recreation use.

Activities within the above categories were considered for all ownerships within the areas of concern, including lands managed by the Bureau of Land Management, the State of Wyoming, and private individuals or corporations. Since the wildlife areas of concern vary, not all sources of impact apply to all species.

Additional sources of impact for big game and grizzly bear include outfitter camps in the Dunoir Special Management Area, Teton Wilderness, and Five Pockets area of the Washakie Wilderness and the associated fall hunting, summer pack trips, and dispersed summer and fall use in these areas. Timber harvests and associated roads and recreational use in the Long Creek watershed are also additional sources of impact to this segment of the Wiggins Fork elk herd and grizzly bear.

Past human activities in and near the area of concern have contributed to the existing conditions present in this area today. Previous timber harvest and road building activities have occurred in this area of concern. In the Dunoir area, that activity was tie hacking, which occurred in the 1940's. Within other portions of the area of concern, the majority of the harvests were predominately clearcuts that are now, for the most part, restocked and are providing hiding cover for big game species. These past management activities have contributed to the stand and landscape characteristics that have made this desirable habitat for big game species. Recreation activities have increased in the area of concern in the last 30 years. The amount of livestock grazing has declined on National Forest System lands in the same area during the same time frame, while livestock grazing on BLM, State, and private lands adjacent to the Horse Creek watershed has probably been relatively constant. Some illegal off-road vehicle use has occurred in this area, primarily associated with hunting seasons during the fall. At the same time elk, deer, and moose populations have increased, particularly elk in the Wiggins Fork herd unit. As mentioned earlier, numbers of big game are most affected by the severity of the winters, the number of hunting licenses sold, the timing and length of hunting seasons, hunter success, and the number of animals actually harvested. Habitat conditions generally influence the distribution of these populations on the landscape.

Grizzly bear use has been expanding in these areas on and off the district outside of the Recovery Area in the recent past and is continuing even with human activities and past habitat modifications. There is a relatively higher degree of human activity in these areas than many of the areas within the Recovery Area, without a proportionate higher increase in human/bear conflicts. These past and current activities have contributed to the present habitat conditions and the effectiveness of the habitat.

Numerous past activities in the area of concern for lynx have created the existing habitat and conditions for lynx. These activities included: conversion of and disturbance to lynx habitat from residential development on the periphery of the Forest; roaded access to higher elevation, remote habitat which provided easier access for past trapping and other disturbances to lynx; increases in snowmobile access into lynx habitat that also allowed easier access for past harvest and disturbance to lynx by both humans and other lynx predators and competitors; fires suppression and natural succession that has created a disproportionate amount of late-successional habitat at the expense of early successional habitats which lynx also need; and regeneration timber harvest 20 to 40 years ago that has provided potential snowshoe hare habitat and lynx foraging habitat.

Previous sources of impacts, along with Scott Well and future timber harvest and prescribed fire in the Ramshorn and Wiggins Fork Vegetative Management areas, can add to the cumulative effects on elk, other big game, and other wildlife and their habitats. The treatment of a relatively small portion of the forested areas in the Ramshorn and Wiggins Fork areas and the exploration of Scott Well may modify where elk will use this forested cover in the short term, but they will not abandon this area. There may be differences between alternatives in how elk would utilize this area in the short term because of the actions and activities associated with completing the project activities, however the proposed activities in the action alternatives will not significantly add to the cumulative effects on elk or other big game habitat in the Horse Creek watershed.

Roads, open or closed, generally decreases habitat effectiveness for wildlife, particularly species that prefer less disturbed habitat, like elk and grizzly bear. It is recognized that, apart from the direct habitat loss, it is not the road itself but the human activity associated with the road that is of concern. Since road construction and the use connected to it can adversely affect those species that prefer less disturbed habitat, road density, both total motorized access route density and open motorized access route density, and secure habitat changes are good measures of effects on these species. And because roads are related to past, present, and this proposed project's activities, road density is a good measure of cumulative effects. This analysis is presented in the grizzly bear section on direct and indirect effects in this chapter.

It is not likely that either action alternative would result in eliminating any biological communities or sensitive species populations. Although the quantity or number of acres of any given plant and animal assemblage might be slightly lowered, the overall community variation across the Forest is expected to remain the same. Similarly, species diversity would not decrease unless species occurring on the Forest were to be eliminated as a result of implementing these alternatives. This possibility is very unlikely. The objective of maintaining habitat for viable populations of all existing wildlife and plant sensitive species is still attainable.

Cumulative effects to wildlife habitat must consider the past, present and foreseeable future (within the next 10 years) actions in the vicinity of the proposed actions. The future rate and amount of new road construction and timber harvest in these areas of concern will probably be much lower than in the past, even though technology has and will improve and the demand for wood products has and will increase. The reason for the decline from the past levels, in part, has been the reductions in Allowable Sale Quantity in the original 1986 Forest Plan and the 1994 ASQ amendment to the Forest Plan.

A large portion of the forested landscape in this analysis area is large (9.0 to 14.0 inch diameter) and very large (>14 inch diameter) tree size classes. The forest landscapes in these areas of concern, including the previously treated stands, will continue to mature and become more homogeneous in stand structure, diversity, and fuel loading thereby making successful fire suppression more difficult. This type of landscape will favor late-successional species that have large home range requirements of contiguous habitat. Landscape biodiversity will decline.

Looking out over the next several decades, the fire disturbance regime will probably have the most significant cumulative effect on habitat for late-successional species. Grazing by domestic livestock in the Forest portions of these areas of concern has declined over past levels and will decrease over recent levels, since the decision on the EA for the 36 Grazing Allotments on the Forest was made. Thus, there is a potential for ungulate use of the grasses and forbs to decrease, thereby causing an increase in the amount of fine fuels available for starting wildfires. This potential increase in fine fuels in the non-forested areas and the increase in amount and continuity of fuels in the forested landscapes will make man-made and natural caused fires more numerous, harder to control, and potentially much larger in size and intensity than in the past. Depending on the size of the fire disturbances, these landscapes may then favor early-successional species and biodiversity could be low again until the stands and landscapes recover from wildfire and follow ecological processes.

The proceeding processes will probably occur in the future regardless of what management takes place in these areas of concern because of the small scale and amount of management or treatment that can occur over time in these large areas. When considered at the landscape scale, these small scale modifications to habitat in both the short- and long-term will not significantly add to the cumulative effects of or impact species which utilize late-successional habitats over relatively large geographic areas.

Because both action alternatives decrease the amount of physically open roads in the watershed, there will be a decrease in open road miles after completion of the treatments. Thus both action alternatives would benefit wildlife species that prefer less disturbed habitat such as grizzly bear and elk. Alternative 2, the proposed action, would reduce open road density more that Alternative 3 and thus would benefit wildlife more in the watershed. The human activities associated with obliterating these roads are not different than what has been happening in these areas in the past with grizzly bear use expanding and increasing. In addition, bears are not likely to be adversely affected as the treated area is small in scale, prey species populations will remain unaffected, and open road density will decrease after the project is completed. There will be no additional adverse cumulative effects to big game or grizzly bears and their habitat by implementing either alternative.

Considering existing and foreseeable impacts to lynx over the area of concern, the action alternatives would not significantly add to the cumulative effects and in the long-term, reduced road density may benefit lynx and their habitat by reducing motorized travel during the snow-free and winter periods.

Cumulative Effects on Watershed Resources

There are currently unacceptable effects on long-term soil productivity and stream health from erosion and sedimentation due to lack of road maintenance, use during wet periods, inadequate or lack of road design, and road length extension by forest users. Stream health inventories validated the soil and water concerns related to roads and identified livestock grazing concerns in certain riparian and wetland areas. However, recent changes in livestock management indicate improvements in rangeland, wetland, and riparian health. Heavy localized recreation use in the Horse Creek campground area is resulting in unacceptable impacts to riparian areas and wetlands (Shoshone NF 2000a). The greatest opportunities for watershed improvement are associated with the road network; these opportunities include upgrading the open roads to be compliant with current standards in order to protect soil productivity and water quality and properly rehabilitating roads that are no longer needed.

Planned future activities that will improve watershed condition include regular road maintenance and upgrading open roads to reduce environment impacts, such as installing additional drainage structures.

The Horse Creek/Wiggins Fork vegetation treatment project is another planned project. This project could include fuels reduction treatments near the T-Cross Ranch, aspen enhancement treatments, timber harvesting, prescribed fire, clearing of roadside vegetation, and other forest health treatments. The project would use the existing road network and road maintenance could occur via a timber sale, thereby allow the district to spend its funds maintaining additional roads. Some temporary roads may be needed to implement the project; those roads would be decommissioned following the project. The potential for a catastrophic wildfire to occur would be reduced through implementation of this project, which reduces the potential for water quality to be impacted.

Alternative 1 would do little to address the identified problems. Given the limitations of road maintenance funds, it will take many years to properly address the issues associated with the open road system. Projects such as the Horse Creek/Wiggins Fork vegetation treatment may provide for additional road maintenance to occur via timber sales. Several roads would continue to receive use during wet periods; primitive routes lacking design would continue to effect watershed resources, road length extensions could remain unmanaged.

Alternatives 2 and 3 would begin to address the effects of the road network by taking steps to fully rehabilitate unnecessary closed roads and primitive routes. These actions, combined with continuing road maintenance and upgrading of the open road system will improve the watershed conditions.

Cumulative Effects on Recreation and Human Uses

Motorized recreation is increasing and is resulting in road network expansion, conflicts between user groups, and issues of safety. Road closures have been present for several years with physical barriers and implementation of a "white arrow" program. The white-arrow program attempts to clearly identify which roads are open by placing a road number and white arrow sign on all open roads. Roads not posted with a white arrow are closed. However, some confusion exists over which roads are open and which are closed. Many in the public oppose a restriction of motorized access. In addition, many attempted closures have been ignored and motorized use continues. Decommissioning activities would improve existing closures, better define the closures, and allow routes to revegetate. The 810 and 811trailheads are difficult to access during wet periods; resurfacing the access roads will mitigate this. The 811trailhead presently does not have adequate parking area/turnaround.

Given the small reduction in motorized access produced by this alternative, it is not expected to have significant effect on the local community, especially when taken in context of Fremont County and the other surrounding Forest Service land that provides motorized recreation. Alternatives 1 and 3 would not reduce the current open road mileage and are not expected to have a significant effect. It is important to realize that road decommissioning is an activity that is expected to continue to be recommended as the Forest conducts watershed assessments and roads analyses. The Forest plans to complete a watershed assessment/roads analysis on the Upper Wind River drainage in 2005.

Although the demand for motorized access seems to be increasing, funds to maintain existing roads have decreased. Both action alternatives would produce a more cost-efficient road system with reduce environmental effects.

Interdisciplinary Team

The analysis in this EA is based in part on the analysis completed for the Horse Creek Watershed Assessment and Roads Analysis. Additional analysis was conducted by the ID team listed below.

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